UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
2002/00816

October 23, 2002

Mr. Fred P. Patron
Senior Transportation Planning Engineer
Federal Highway Administration, Oregon Division
530 Center Street NE
Salem, OR 97301

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Act Essential Fish Habitat Consultation for Rogue River (Depot Street) Bridge and Boat Ramp Replacement Project, Jackson County, Oregon.

Dear Mr. Patron:

Enclosed is the biological opinion (Opinion) prepared by the National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7 of the Endangered Species Act (ESA) on the effects of funding the proposed Rogue River (Depot Street) Bridge Replacement Project in Jackson County, Oregon. In this Opinion, NOAA Fisheries concludes that the proposed action is not likely to jeopardize the continued existence of ESA-listed Southern Oregon/Northern California Coast coho salmon *(Oncorhynchus kisutch)*, or destroy or adversely modify designated critical habitat. As required by section 7 of the ESA, NOAA Fisheries includes reasonable and prudent measures with nondiscretionary terms and conditions that NOAA Fisheries believes are necessary to minimize the potential for incidental take associated with this action.

This Opinion also serves as consultation on essential fish habitat pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and its implementing regulations (50 CFR part 600).

If you have any questions regarding this consultation, please contact Jim Collins of my staff in the Oregon Habitat Branch at 541.957.3389.

Sincerely,

for Michael R Crouse

D. Robert Lohn
Regional Administrator

cc: Molly Cary, ODOT
Ken Cannon, ODOT
Ken Franklin, ODOT

Endangered Species Act - Section 7 Consultation
&
Magnuson-Stevens Act
Essential Fish Habitat Consultation

BIOLOGICAL OPINION

Rogue River (Depot Street) Bridge and Boat Ramp Replacement Project
Jackson County, Oregon

Agency: Federal Highway Administration

Consultation Conducted By: NOAA Fisheries, Northwest Region

Date Issued: October 23, 2002

Issued by: F.r Michael R Crouse
D. Robert Lohn
Regional Administrator

Refer to: **2002/00816**

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1. ENDANGERED SPECIES ACT

1.1 Background

On July 16, 2002, the National Marine Fisheries Service (NOAA Fisheries) received a biological assessment (BA) and a request from the Federal Highway Administration (FHWA) for Endangered Species Act (ESA) section 7 formal consultation for the Rogue River (Depot Street) Bridge Replacement Project. The Oregon Department of Transportation (ODOT) proposes replacement of the Depot Street Bridge, which crosses the Rogue River at the town of Rogue River, Oregon. This biological opinion (Opinion) is based on the information presented in the BA and discussions with the applicant.

The FHWA has determined that Southern Oregon/Northern California coast (SONC) coho salmon (*Oncorhynchus kisutch*) may occur within the project area. The SONC coho salmon were listed as threatened under the ESA on May 6, 1997 (62 FR 24588), critical habitat was designated on May 5,1999 (64 FR 24049), and interim protective regulations were issued under section 4(d) of the ESA on July 18, 1997 (62 FR 38479). Critical habitat was designated to include all river reaches accessible to listed coho salmon between Cape Blanco, Oregon, and Punta Gorda, California. Excluded are areas above specific dams or above longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for at least several hundred years). The FHWA, using methods described in *Making ESA Determinations of Effect for Individual or Grouped Actions at the Watershed Scale* (NMFS 1996), determined that the proposed action is likely to adversely affect (LAA) SONC coho salmon.

This Opinion is based on the information presented in the BA and developed through correspondence to obtain additional information and clarity. The objective of this Opinion is to determine whether the actions to remove the existing structure and construct a new structure are likely to jeopardize the continued existence of SONC coho salmon, or destroy or adversely modify critical habitat. This consultation is undertaken under section 7(a)(2) of the ESA, and its implementing regulations, 50 CFR Part 402.

1.2 Proposed Action

1.2.1 Project Purpose

This project is designed to replace the Depot Street Bridge over the Rogue River. The Depot Street Bridge serves to connect the city of Rogue River and Interstate 5 with Highway 99. Inspections of the bridge revealed extensive cracked and deteriorating concrete, causing it to be load restricted, and creating the need for replacement. The project would involve complete removal and replacement of the existing bridge. In addition, a new boat ramp would be constructed under the new bridge on the south bank, replacing the existing boat ramp under the old bridge. During the construction period, a temporary boat ramp would be constructed on the south bank, downstream of the existing ramp.

1.2.2 Temporary Boat Ramp

Since the existing boat ramp is located directly under the existing Depot Street bridge, construction of the temporary boat ramp will be the first construction activity. Construction of the temporary boat ramp will take place in stages. In the first stage, prior to the beginning of the in-water work period, grading will take place outside the wetted perimeter. All work within the wetted channel will take place during the Oregon Department of Fish and Wildlife (ODFW) in-water work period of June 1 to September 15.

During the first phase, construction will consist of grading the boat ramp area to within 2 meters (m) of the wetted perimeter and placing crushed rock overlain with concrete as the final driving surface. Since this work would be done outside of the in-water work period, the ramp would only be constructed to within 2 m of the wetted perimeter. During construction, erosion control features would be placed between the construction and the wetted perimeter.

The ramp would be extended into the wetted perimeter only after water has receded, but within the in-water work window. Crushed rock would be placed on geotextile fabric for construction of the temporary boat ramp within the wetted perimeter. The perimeter of the temporary boat ramp would be protected by 74 cubic meters of class 350 metric riprap, according to Marine Board guidelines. During construction of the temporary boat ramp, the work area would be isolated from the active channel by a method approved by the Project Engineer and NOAA Fisheries.

A graveled parking area within the adjacent John Fleming Rest Area would also be constructed. The temporary parking area and access to the parking area is approximately 1,420 square meters, while the temporary boat ramp footprint is approximately 5 m wide by 24 m long. The temporary parking and boat ramp would be removed, and the area rehabilitated after permanent boat ramp construction. The riprap and crushed rock base would also be removed prior to project completion.

1.2.3 Depot Street Bridge Demolition

The existing Depot Street Bridge is a five-span structure, with two bents inside of the two-year flood plain, and is approximately 132 m in length and 12 m wide. The main span over the Rogue River consists of a 61 m steel truss with a concrete deck. The remainder of the bridge is a reinforced concrete deck-girder system. It is estimated that removal of the existing structure will take place during the ODFW in-water work period of June 1 to September 15, 2005. The existing bridge will be removed in its entirety, with the exception of the concrete footings. To reduce impacts, the existing footings will be removed to approximately 0.6 m below the groundline.

The most likely method for removal of the bridge is to dismantle it in place, lifting pieces as large as possible and placing them on the south bank to be further dismantled and removed. By using this method it is anticipated that a work bridge will be needed on the downstream side to

accommodate cranes and other equipment used during demolition. It would extend completely across the river, and would require approximately 25 steel piles (all pile to be used in the project will be steel) in the wetted perimeter of the Rogue River. To assure containment of debris over the active channel the contractor would be required to provide a containment plan to the Engineer for approval prior to demolition.

1.2.4 New Depot Street Bridge

The new Depot Street bridge would be a two-span, cast-in-place concrete-tied arch bridge built approximately 8 m upstream of the existing bridge. The bridge would have one interior bent within the ordinary high water mark (OHWM) and approximately the same dimensions as the existing bent. The two spans would be approximately 32 and 93 meters long. The bridge would be approximately 125 m long and 23 m wide.

A temporary work bridge across the river is required for construction of the new bridge. The work bridge would consist of driven piles, pile caps, girders, and decking. Span lengths would be approximately 8 m, which would result in about 80 driven piles with an estimated 36 within the active channel. The piles would then be cut to elevation, a steel cap connected to the piles, and then the beams and decking placed. This construction action would probably start on the south end in the Coyote Evans Wayside Park and work across the river, one span at a time, with the crane sitting on the previously completed span.

The work bridge would likely be in place for the three years of construction. Due to the extremely high risk of losing the work bridge in flood events, the contractor would likely build the work bridge in a manner that allows him to leave the piles and caps in place over the winter, but remove the beams and decking. This would reduce the potential to collect debris during high water and reduce the risk of losing the bridge. The work bridge piles would be extracted after construction of the new Depot Street Bridge is completed.

Once the work bridge is in place the falsework for the concrete-tied arch would be constructed. Span lengths for the falsework could vary, with 8 m as the minimum practical length, resulting in about 80 driven steel piles. Depending on the number of piles per bent, approximately 48 piles would be located in the active channel all year.

Bents 1 and 3 are pile-supported concrete footings and are located above the two-year flood elevation. No riprap is planned for either Bent 1 or Bent 3. Access to Bent 3 would be by way of the temporary work bridge. Bent 2 is located within Coyote Evans Wayside Park and is entirely within the two-year floodplain. It is located outside of the normal low water edge of the river to reduce the impact to the river during construction. It is also located upland of the existing bent by approximately 23 m. Construction would take place outside the in-water work window and outside the wetted perimeter of the river.

The bridge location is subject to streambed scour. If a spread footing is used, the bottom of the footing must be below the calculated scour depth, which is 5.3 m (17.4 ft) below the existing

ground elevation. The footing would be supported on driven piles, which must be pre-bored. By constructing pile-supported footings, the bottom of the footing can be raised up to approximately 2.6 m below the existing ground surface. There would be approximately 26 cubic meters of excavation below the two-year flood elevation from preboring of the piles at Bent 2.

The excavation spoils and the pumped water would be collected and disposed off-site. Erosion control methods would be used to ensure that the river is protected from any runoff resulting from the excavation and concrete placing operations. The excavation below the two-year flood elevation would be approximately 900 cubic meters. No riprap is planned for Bent 2. The area in the vicinity of the footings would be paved to provide parking and access to the boat ramp. The paving would provide the dual purpose of protection against scour and as a parking/access area. This area is currently paved.

Once the two footings at Bent 2 are constructed, a concrete column would be constructed at each footing, and then an overhead concrete crossbeam would connect the two columns at the top. Falsework would be required for crossbeam construction.

The concrete tied arch span consists of a cast-in-place concrete slab, varying from 0.76 to 0.91 m thick and 17.7 m wide. Once the forms are in place and the reinforcing steel is placed, the slab concrete would be poured using concrete pumps. The arch ribs and struts may be either cast-in-place concrete or precast concrete. The falsework for the arch ribs/struts would be supported by the previously poured arch slab, eliminating the need for any additional falsework in the river. The cast-in-place forms for the deck and arch would be watertight to prevent “green” concrete and concrete contaminated water from entering the active channel of the Rogue River. Contaminated cure water would not enter the active channel.

After the arch ribs/struts are cured and their falsework removed, steel hangers would be installed connecting the slab to the arch ribs. The slab would then be post-tensioned both longitudinally and transversely. All post-tensioning ducts would be grouted. Once the slab is post-tensioned and grouted, the slab falsework would be removed. All concrete would be pumped into the water-tight forms to minimize potential green concrete spills onto the two-year floodplain.

In order to eliminate the need for a detour bridge the arch would be constructed approximately 8 m offset upstream. Temporary bents would be constructed adjacent to Bents 2 and 3 to carry the full dead weight of the arch span. The two temporary bents would each consist of about 40 driven steel piles with steel or concrete caps and lateral bracing. After the Span 2 arch and Span 1 post-tensioned box girder are constructed, traffic would be moved to the new bridge. Then the existing bridge would be removed, the second stage of Bent 3 would be constructed, and the arch would then be jacked downstream into the final position. The temporary bents would then be removed.

Span 1 is a 1.2 m deep, post-tensioned concrete box girder, constructed on driven steel pile falsework. The box girder concrete would be poured in three separate sections, including the bottom slab, longitudinal and transverse stems, and deck. The span would then be post-tensioned longitudinally and the post-tensioned ducts grouted. After the post-tensioning is complete the falsework would be removed.

Runoff from the new bridges and roadway would be piped to the ends of the bridge to a series of water quality manholes before being discharged into the Rogue River via existing outfalls. Currently, the runoff drains directly into the Rogue River through multiple scuppers without any treatment.

Upon completion of the new Depot Street Bridge, the permanent boat ramp would be constructed directly underneath span 2. The new boat ramp would be approximately 8 m wide and 28 m long and be constructed of precast and cast-in-place slabs. The precast portion would be constructed at the lower end of the ramp within the wetted channel. The perimeter of the ramp would be protected with 72 cubic meters of class 350 riprap.

The project would result in the removal of approximately 43 trees. Woody vegetation cleared would primarily be deciduous, ranging between 10 and 79 centimeters diameter at breast height (dbh). Woody vegetation would be replanted at a rate of 1.5 to 1. Areas requiring revegetation would be replanted between October 15 and April 15. Sediment and erosion control measures outlined in the BA (pages 25 - 35) would be implemented in this portion of the project.

All activities below the OHWM elevation would be isolated, and would occur during the ODFW in-water work period (July 1 to September 15). Any exceptions to this timing would be granted only with concurrence by a NOAA Fisheries biologist. Any fish trapped in the isolation area would be removed by an ODFW/ODOT-approved biologist before dewatering.

1.2.5 Depot Street and Interstate-5 Off-Ramp Improvements

Improvements would be made to Depot Street from the north end of the Depot Street Bridge to the intersection of Pine Street and Classick Drive and to Interstate-5 northbound and southbound off-ramps. The project would widen Depot Street from two lanes with shoulders to three lanes with no shoulders. Depot Street would be widened approximately 0.6 to 0.9 m on each side. Sidewalks would be constructed behind the columns of the Interstate-5 overpass to the intersection of Pine Street and Classick Drive. Depot Street at the intersection of Pine Street and Classick Drive would be reconstructed to provide a slightly larger turning radius.

The southbound off-ramp would be widened to two lanes for approximately 61 m up from the intersection with Depot Street. The northbound off-ramp would be reconstructed to slightly increase the turning radius. Curbs, gutters and inlets would be constructed on the northbound off ramps to collect local drainage. This drainage would be piped to the new drainage system for the

bridge. New signals would be constructed at both off ramps. New railroad signals and gates would be installed on Depot Street.

The improvements to Depot Street and Interstate-5 off ramps would add 810 square meters of impervious surface outside of the adjacent riparian area. A series of four water quality manholes would provide 270% treatment, removing 70% of the total suspended solids, and minor detention for the total new impervious surface.

1.3 Biological Information and Critical Habitat

Within the Rogue River watershed, NOAA Fisheries listed the SONC coho salmon as threatened under the ESA on May 6, 1997 (62 FR 24588), critical habitat was designated on May 5,1999 (64 FR 24049), and interim protective regulations were issued under section 4(d) of the ESA on July 18, 1997 (62 FR 38479). Critical habitat includes all streams accessible to SONC coho salmon between Cape Blanco, Oregon and Punta Gorda, California. The designation includes all waterways, substrates, and adjacent riparian zones below longstanding, naturally-impassable barriers. The adjacent riparian zone is defined based on key riparian functions. These functions are shade, sediment, nutrient/chemical regulation, streambank stability, and input of large woody debris/organic matter.

SONC coho salmon are known to spawn and rear in the Rogue River watershed. Adult coho salmon enter the Rogue River in late September and spawn from October through January, with the majority of spawning activity occurring in smaller, low gradient tributaries. Coho salmon primarily use the Rogue River within the project area as a migration corridor. The downstream migration of coho salmon smolts typically occurs from early February through May, but may extend into June. Due to location of the project in the mainstem Rogue River, SONC coho salmon are not expected to be within the project area during the ODFW in-water work period (June 1 to September 15).

1.4 Evaluating Proposed Actions

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR Part 402 (the consultation regulations). NOAA Fisheries must determine whether the action is likely to jeopardize the listed species and/or whether the action is likely to destroy or adversely modify critical habitat. This analysis involves the: (1) Definition of the biological requirements and current status of the listed species, and (2) evaluation of the relevance of the environmental baseline to the species' current status.

Subsequently, NOAA Fisheries evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NOAA Fisheries must consider the estimated level of mortality attributable to: collective effects of the proposed or continuing action, the environmental baseline, and any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed salmonid's life stages that occur beyond

the action area. If NOAA Fisheries finds that the action is likely to jeopardize the listed species, NOAA Fisheries must identify reasonable and prudent alternatives for the action. Furthermore, NOAA Fisheries evaluates whether the action, directly or indirectly, is likely to destroy or adversely modify the listed species' designated critical habitat. NOAA Fisheries must determine whether habitat modifications appreciably diminish the value of critical habitat for both survival and recovery of the listed species. NOAA Fisheries identifies those effects of the action that impair the function of any essential element of critical habitat. NOAA Fisheries then considers whether such impairment appreciably diminishes the habitat's value for the species' survival and recovery. If NOAA Fisheries concludes that the action would destroy or adversely modify critical habitat, it must identify any reasonable and prudent alternatives available.

For the proposed action, NOAA Fisheries' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NOAA Fisheries' critical habitat analysis considers the extent to which the proposed action impairs the function of essential biological elements necessary for juvenile and adult migration, and juvenile rearing of SONC coho salmon.

1.4.1 Biological Requirements

The first step in the methods NOAA Fisheries uses for applying the ESA section 7(a)(2) to listed coho salmon is to define the species' biological requirements that are most relevant to each consultation. NOAA Fisheries also considers the current status of the listed species, taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with the determinations made in its decision to list SONC coho salmon for ESA protection and also considers new available data that is relevant to the determination.

The relevant biological requirements are those necessary for SONC coho salmon to survive and recover to naturally-reproducing population levels, at which time protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance their capacity to adapt to various environmental conditions, and allow them to become self-sustaining in the natural environmental.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful migration and holding in the action area. The current status of the SONC coho salmon, based upon their risk of extinction, has not significantly improved since the species was listed. The Rogue River watershed serves as freshwater riverine spawning habitat and year-round juvenile rearing habitat. Lack of complex cover, deep pools, and undercut banks combined with high summer water temperatures make juvenile salmonid rearing very unlikely in the action area.

1.4.2 Environmental Baseline

The current range-wide status of the identified ESU may be found in Nickelson *et al.* (1992) and Weitkamp *et. al* (1995). The identified action would occur within the range of SONC coho salmon. The action area is the area that is directly and indirectly affected by the action. The direct effects occur at the project site and may extend upstream or downstream based on the potential for impairing fish passage, hydraulics, sediment and pollutant discharge, and the extent of riparian habitat modifications. Indirect effects may occur throughout the watershed where actions described in this Opinion lead to additional activities or affect ecological functions contributing to stream degradation. As such, the action area for the proposed activity includes the immediate area where the Depot Street Bridge Replacement project would occur, and those areas upstream and downstream that may reasonably be affected, temporarily or in the long term. For the purposes of this Opinion, the action area is the channel and adjacent riparian area from approximately 500 m upstream from the project site and 1.6 kilometers (km) downstream of the project site. Temporary indirect impacts (disruption of primary productivity and food resources) and potential direct affects (sediment, pollutant discharge and hydraulics) to the Rogue River would be caused by the in-water work and general riparian and bank disturbance within the project area.

The Rogue River originates on the western slopes of the Cascade Mountains and flows west through the Rogue Valley and the Siskiyou Mountains until it enters the Pacific Ocean at Gold Beach, Oregon. The proposed project occurs within the Klamath Mountains province. The Rogue Valley, located in the Klamath Mountains province, is characterized by forest stands, groves, and oak savannas (Franklin and Dyrness 1973). The Rogue River is water-deficient, primarily due to the seasonal pattern of rainfall and the water demand for urban and irrigation use. The hydrology in the Rogue River above and below the project site is influenced by dams and irrigation systems. Lost Creek Dam, located approximately 64 km upstream of the project area, controls flows in the Rogue River. Savage Rapids Dam is located approximately 5.6 km downstream of the project area and is used to divert irrigation water for the Grants Pass Irrigation District. Further, scattered temporary push-up dams are constructed during the irrigation season. Various water quality monitoring within the Rogue River by Oregon's Department of Environmental Quality shows degraded water quality regarding temperatures, biological oxygen demand, dissolved oxygen, ammonia, sediment and pH levels.

Based on the best available information regarding the current status of SONC coho salmon range-wide, the population status, trends, genetics, and the poor environmental baseline conditions within the action area, NOAA Fisheries concludes that the biological requirements of SONC coho salmon are not currently being met. Degraded habitat, resulting from agricultural practices, forestry practices, road building, and residential construction, indicate many aquatic habitat indicators are not properly functioning within the Rogue River. Actions that do not maintain or restore properly functioning aquatic habitat conditions would be likely to jeopardize the continued existence of SONC coho salmon.

1.5 Analysis of Effects

1.5.1 Effects of Proposed Action

The proposed actions have the potential to cause the following impacts to SONC coho salmon:

Construction Equipment.
Accidental release of fuel, oil, and other contaminants may occur. Operation of back-hoes, excavators, and other equipment requires the use of fuel, lubricants, *etc.*, which, if spilled into a waterbody channel, or into the adjacent riparian zone, can injure or kill aquatic organisms. Petroleum-based contaminants (such as fuel, oil, and some hydraulic fluids) contain poly-cyclic aromatic hydrocarbons (PAHs), which can be acutely toxic to salmonids at high levels of exposure and can also cause chronic lethal and acute and chronic sublethal effects to aquatic organisms (Neff 1985). Similarly, exposure to herbicides can have lethal and sublethal effects on salmonids, aquatic invertebrates, aquatic vegetation, and target and non-target riparian vegetation (Spence *et al.* 1996). To minimize the potential of pollutants entering the waterway, construction equipment, materials and refueling would be staged at least 45 m from the OHWM.

Hardened embankments.
Impacts to waterways from installation of hardened embankments include the simplification of stream channels, alteration of hydraulic processes, and prevention of natural channel adjustments (Spence *et al*. 1996). Moreover, embankment hardening may shift the erosion point upstream or downstream of the project site, and contribute to stream velocity acceleration. As amplified erosive forces attack different locations, and landowners respond with more bank hardening, the river eventually attains a continuous fixed alignment lacking habitat complexity (USACE 1977).

Fish habitats are enhanced by the diversity of habitats at land-water interfaces and adjacent banks (USACE 1977). Streamside vegetation provides shade that reduces water temperature. Overhanging branches provide cover from predators. Insects and other invertebrates that fall from overhanging branches may be preyed upon by fish, or provide food sources for other prey organisms. Immersed vegetation, logs, and root wads provide attachment points for aquatic prey organisms, shelter from swift currents during high flow events, retention of bed load materials, and reduction of flow velocity.

The most desirable method of bank protection is revegetation. However, revegetation alone can seldom stabilize banks steeper than 3 to 1 (horizontal-vertical) or areas of high velocity (USACE 1977). Although they are biologically less desirable, fixed structures provide the most reliable means of bank stability. The use of fixed structures should be a last resort. Combining structural measures such as sloped riprap, vegetation, and large woody debris (LWD) is preferable to a structural solution without vegetation (USACE 1977). Where riprap is necessary it would be buried under native streambank material to facilitate stream continuity and the growth of woody vegetation.

Sedimentation.

Potential sedimentation impacts to listed salmonids from the proposed actions include both direct and indirect effects. Potential direct effects include mortality from exposure to suspended sediments (turbidity) and contaminants resulting from construction. Potential indirect effects include behavioral changes resulting from elevated turbidity level during river bank habitat alterations (Sigler *et al.* 1984, Berg and Whitman *et al.* 1982, Gregory 1988).

Suspended sediment and turbidity influences on fish reported in the literature range from beneficial to detrimental. Elevated total suspended solids (TSS) conditions have been reported to enhance cover conditions, reduce piscivorous fish/bird predation rates, and improve survival. Elevated TSS conditions have also been reported to cause physiological stress, reduce growth, and adversely affect survival. Of key importance in considering the detrimental effects of TSS on fish is the frequency and the duration of the exposure, not just the TSS concentration.

Behavioral avoidance of turbid waters by salmonids may be one of the most important effects of suspended sediments (DeVore *et al.* 1980, Scannell 1988). Salmonids have been observed to move laterally and downstream to avoid turbidity plumes (Sigler *et al.* 1984, Lloyd 1987, Scannell 1988). Juvenile salmonids tend to avoid streams that are chronically turbid, such as glacial streams or those disturbed by human activities, unless the fish need to traverse these streams along migration routes (Lloyd *et al.* 1987). In addition, a documented positive effect is providing refuge and cover from predation (Gregory and Levings 1998).

Fish that remain in turbid, or elevated TSS, waters experience a reduction in predation from piscivorous fish and birds (Gregory and Levings 1998). In systems with intense predation pressure, this provides a beneficial trade off (*e.g.*, enhanced survival) to the cost of potential physical effects (*e.g.*, reduced growth). Turbidity levels of about 23 Nephalometric Turbidity Units (NTU) have been found to minimize bird and fish predation risks (Gregory 1993). Exposure duration is a critical determinant of the occurrence and importance of physical or behavioral effects (Newcombe and MacDonald 1991). Salmonids have evolved in systems that periodically experience short-term pulses (days to weeks) of high suspended sediment loads, often associated with flood events, and are adapted to such high pulse exposures. Adult and larger juvenile salmonids may be little affected by the high concentrations of suspended sediments that occur during storm and snowmelt runoff episodes (Bjornn and Reiser 1991). However, research shows that chronic exposure can cause physiological stress responses that can increase maintenance energy and reduce feeding and growth (Redding *et al.* 1987, Lloyd 1987, Servizi and Martens 1991).

Turbidity, at moderate levels, has the potential to adversely affect primary and secondary productivity, and at high levels, has the potential to injure and kill adult and juvenile fish, and may also interfere with feeding (Spence *et al.* 1996). Newly emerged salmonid fry may be vulnerable to even moderate amounts of turbidity (Bjornn and Reiser 1991). Other behavioral effects on fish, such as gill flaring and feeding changes, have been observed in response to pulses of suspended sediment (Berg and Northcote 1985). Fine, redeposited sediments also have the potential to adversely affect primary and secondary productivity (Spence *et al.* 1996), and to reduce incubation success (Bell 1991) and cover for juvenile salmonids (Bjornn and Reiser

1991). Because the potential for turbidity should be localized and brief, and the potential for fish being present is minimal, the probability of direct mortality is negligible.

Construction-related effects necessary to complete the proposed action would be minimized by implementation of effective erosion and pollution control measures, and completing all work within the OHWM during the ODFW approved in-water work period. In addition, all work would be isolated from the wetted channel.

Water Quality Stormwater Effects.
Due to an increase of new impervious surface, the potential exists for an increase in runoff from the proposed new impervious surface. However, the proposed stormwater runoff treatment criteria would offset any potential adverse effects to water quality as a result of the proposed action. The proposed stormwater treatment stated within the BA would require all stormwater to be routed to the end of the bridges, where it would be treated in a manner that would likely result in a decrease of pollutants to the Rogue River.

Stream Hydraulics.
The placement of fill material below the OHWM would typically result in simplification of habitat and increased stream velocities under the structure. However, the new bridge has only one bent within the OHWM resulting in a net decrease of fill within the OHWM. The new bent within the OHWM would result in a slight decrease of fill within the OHWM cross-section.

Riparian Vegetation.
The removal of approximately 43 trees would result in the short-term potential for exposed soils and increased sediment transport to the Rogue River. Woody vegetation cleared would be primarily deciduous, ranging between 10 and 79 centimeters dbh. However, during construction, erosion control measures and post-project riparian plantings would reduce erosion during construction and restore woody vegetation. All impacted areas would be restored to pre-work conditions. Damaged streambanks would be restored to a natural slope, pattern, and profile suitable for establishment of permanent woody vegetation. All exposed soil surfaces, including construction access roads and associated staging areas, would be stabilized with mulch, native herbaceous seeding, and native woody vegetation. Woody vegetation removed during construction would be replanted at a 1.5 to 1 ratio. Areas requiring revegetation would be replanted between October 15 and April 15. The riparian plantings would provide bank stabilization and shading, and increase the potential for insect production.

Work Area Isolation and Fish Removal.
Bridge bent and work bridge construction and removal may require work area isolation from the flowing water. Fish removal activities would be in accordance with NOAA Fisheries fish handling guidelines. Any listed fish removed from the isolated work area would experience high stress with the possibility of up to a 5% delayed mortality rate, depending on rescue method.

Work area isolation can result in a loss of aquatic invertebrates due to dewatering within the wetted channel. In addition, sediment-laden water created within isolated work areas could escape, resulting in impacts to the aquatic environment downstream of the project site.

The adverse effects of these activities on SONC coho salmon and their riparian and aquatic habitats would be avoided or minimized by carrying out construction methods and approaches described in the BA (pages 25-36).

1.5.2 Effects on Critical Habitat

NOAA Fisheries designates critical habitat based on physical and biological features that are essential to the listed species. Essential features for designated critical habitat include substrate, water quality, water quantity, water temperature, food, riparian vegetation, access, water velocity, space and safe passage. Critical habitat for SONC coho salmon consists of all waterways below naturally-impassable barriers, including the project area. The adjacent riparian zone is also included in the designation. This zone is defined as the area that provides the following functions: Shade, sediment, nutrient or chemical regulation, streambank stability, and input of large woody debris or organic matter.

The proposed actions would affect critical habitat. In the short term, a temporary increase of sediments and turbidity, and disturbance of riparian and instream habitat, is expected. Riparian function would be affected by the proposed action, as described in section 1.5.1 of this Opinion. Habitat features that would likely be negatively affected by the proposed action include water quality (including temperature), water quantity, and riparian vegetation. Implementation of project conservation measures as described above in section 1.2 would avoid or minimize the risk of adverse effects.

1.5.3 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as "those effects of future State or private activities, not involving Federal activities, that are reasonably certain to occur within the action area of the Federal action subject to consultation." The action area is defined as the Rogue River 500 m upstream and 1.6 km downstream of the Depot Street Bridge.

Many actions occur within the Rogue watershed, including the action area. Non-federal activities within the action area are expected to increase with a projected 34% increase in human population over the next 25 years in Oregon (Oregon Department of Administrative Services 1999). Thus, NOAA Fisheries assumes that future private and state actions would continue within the action area, but at increasingly higher levels as population density increases. NOAA Fisheries assumes that future FHWA transportation projects in the Rogue watershed would be reviewed through separate section 7 consultation processes and therefore are not considered cumulative effects.

1.6 Conclusion

NOAA Fisheries has determined that, when the effects of the FHWA's proposed action (funding the Depot Street Bridge Replacement Project) are added to the environmental baseline and cumulative effects occurring in the action area, they are not likely to jeopardize the continued existence of SONC coho salmon, or destroy or adversely modify designated critical habitat. These conclusions were based on the following considerations: (1) All in-water work and other construction activities within the OHWM elevation would take place according to the ODFW in-water work period to protect fish and wildlife resources; (2) work area isolation (including use of NOAA Fisheries guidelines for proper fish handling) and other conservation measures would be in place to avoid or minimize adverse affects to water quality; (3) potential flow effects of increased impervious area would be avoided or minimized by water quality treatment and detention before being released into the Rogue River; and (4) streambanks and riparian areas disturbed by new construction and in the area uncovered by removal of the old bridge would be planted with native woody vegetation. Therefore, the proposed action is not expected to prevent or delay the achievement of properly functioning habitat conditions in the action area.

1.7 Reinitiation of Consultation

As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained or is authorized by law and if: (1) The amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this Opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this Opinion; or (4) a new species is listed or critical habitat is designated that may be affected by the action. In instances where the amount or extent of authorized incidental take is exceeded, any operations causing such take must cease pending reinitiation of consultation.

2. INCIDENTAL TAKE STATEMENT

Section 9 and rules promulgated under section 4(d) of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. "Harass" is defined as actions that create the likelihood of injuring listed species by annoying it to such an extent as to significantly alter normal behavior patterns which include, but are not limited to, breeding, feeding, and sheltering. "Incidental take" is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in complicance with the terms and conditions of this incidental take

statement.

2.1 Amount and Extent of the Take

NOAA Fisheries anticipates that the action covered by this Opinion is reasonably certain to result in incidental take of SONC coho salmon because of detrimental effects from sediment pulses, increased temperature levels (non-lethal), and the slight possibility of juvenile presence in the vicinity of the project site during in-water work. NOAA Fisheries expects the possibility exists for incidental take of up to 20 juvenile coho salmon during work area isolation and handling of fish. Take resulting from the effects of other project actions covered by this Opinion is largely unquantifiable in the short term and not expected to be measurable in the long term. The extent of take is limited to the action area.

2.2 Reasonable and Prudent Measures

The measures described below are non-discretionary. They must be implemented so that they become binding conditions in order for the exemption in section 7(a)(2) to apply. The FHWA has the continuing duty to regulate the activities covered in this incidental take statement. If the FHWA fails to require ODOT to adhere to the terms and conditions of the incidental take statement through enforceable terms added to the document authorizing this action, or fails to retain the oversight to ensure compliance with these terms and conditions, the protective coverage of section 7(o)(2) may lapse.

The Depot Street Bridge Replacement Project includes a set of "conservation measures" designed to minimize take of ESA-listed species. These are described on pages 30 to 36 of the BA, dated June, 2002. Specific measures for in-water and bank work, clearing and grubbing, bridge removal, erosion control, hazardous materials, and site-specific conservation and habitat remediation measures are also included.

NOAA Fisheries believes that the following reasonable and prudent measures, along with conservation measures described in the BA, are necessary and appropriate to minimize the likelihood of take of listed fish resulting from implementation of this Opinion. These reasonable and prudent measures would also minimize adverse effects to designated critical habitat.

The FHWA shall:

1. Minimize the likelihood of incidental take by limiting the time of in-water work as necessary to avoid harming vulnerable salmon life stages, including migration and rearing.

2. Minimize the likelihood of incidental take from in-water work by ensuring that the in-water work areas are isolated from flowing water.

3. Minimize the amount and extent of incidental take from construction activities in or near

the waterway through development and implementation of effective erosion and pollution control measures throughout the area of disturbance and for the life of the project.

4. Minimize the amount and extent of take from loss of instream habitat and impacts to critical habitat by implementing measures to minimize impacts to riparian and instream habitat, or where impacts are unavoidable, to replace or restore lost riparian and instream functions.

5. Minimize the amount and extent of take from stormwater impacts and altered stream hydraulics by implementing measures to treat water and limit fill within the 100-year floodplain.

6. Ensure that temporary and permanent impacts to the riparian and instream habitat are restored and mitigated.

7. Ensure effectiveness of implementation of the reasonable and prudent measures, all fish handling, erosion control measures, and plantings for site restoration through monitoring and evaluation both during and following construction.

2.3 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, the FHWA must comply with the following terms and conditions, which implement the reasonable and prudent measures described above for each category of activity. These terms and conditions are non-discretionary.

1. To implement Reasonable and Prudent Measure #1 (in-water timing and minimizing the extent of in-water work), the FHWA shall ensure:
    a. Construction impacts will be confined to the minimum area necessary to complete the project.
        i. Survey and mark the OHWM at the project site prior to commencement of work.
        ii. All work within the active channel that could potentially contribute sediment or toxicants to downstream fish-bearing streams will be completed within the negotiated ODFW in-water work period (June 1 to September 15).
    b. Extensions of the in-water work period, including those for work outside the wetted perimeter of the stream but below the OHWM, must have the concurrence of a NOAA Fisheries biologist.
    c. ODOT will arrange a pre-construction meeting with NOAA Fisheries and the contractor prior to commencement of project activities.
    d. ODOT shall notify NOAA Fisheries at least one week prior to the start of work below the OHWM.

2. To implement Reasonable and Prudent Measure #2 (isolation of in-water work area and proper fish handling methods), the FHWA shall ensure that the work area is well isolated from the active flowing stream within a coffer dam (constructed of sandbags, sheet pilings, inflatable bags, *etc.*), or similar structure, to minimize the potential for sediment entrainment. The FHWA shall also ensure that during fish capture and salvage NOAA Fisheries-approved fish handling techniques will be practiced.
    a. During in-water work within the OHWM, if the project involves either significant channel disturbance or use of equipment within the wetted channel, ensure that the work area is well isolated from the active flowing stream within a cofferdam (constructed of sand bags, sheet pilings, inflatable bags, *etc.*) or similar structure, to minimize the potential for sediment entrainment. Furthermore, no ground or substrate disturbing action will occur within the OHWM 45 m upstream of potential spawning habitat as measured at the thalweg without isolation of the work area from flowing waters. After the coffer dam is in place, any fish trapped in the isolation pool will be removed by a permitted ODOT and/or ODFW Biologist prior to de-watering, using NOAA Fisheries-approved methods.
        i. Any water intake structure authorized under this Opinion must have a fish screen installed, operated and maintained in accordance to NOAA Fisheries fish screen criteria.
            (1) Water pumped from the work isolation area will be discharged into an upland area providing over-ground flow before returning to the creek. Discharge will occur so that it does not cause erosion.
            (2) Discharges into potential fish spawning areas or areas with submerged vegetation are prohibited.
        ii. Fish Salvage.
            (1) Prior to and intermittently during pumping attempts will be made to salvage and release fish from the work isolation area as is prudent to minimize risk of injury. If the fish salvaging aspect of this project requires the use of seine equipment to capture fish, it must be accomplished as follows:
                (a) Seining will be conducted by or under the supervision of a fishery biologist experienced in such efforts and all staff working with the seining operation must have the necessary knowledge, skills, and abilities to ensure the safe handling of all ESA-listed fish.
                (b) ESA-listed fish must be handled with extreme care and kept in water to the maximum extent possible during seining and transfer procedures. The transfer of ESA-listed fish must be conducted using a sanctuary net that holds water during transfer, whenever necessary to prevent the added stress of an out-of-water transfer.
                (c) Seined fish must be released as near as possible to capture sites.

(d) The transfer of any ESA-listed fish from the applicant to third-parties other than NOAA Fisheries personnel requires written approval from NOAA Fisheries.

(e) The applicant must obtain any other Federal, state, and local permits and authorizations necessary for the conduct of the seining activities.

(f) The applicant must allow NOAA Fisheries, or its designated representative, to accompany field personnel during the seining activity, and allow such representative to inspect the applicant's seining records and facilities.

(g) A description of any seine and release effort will be included in a post-project report, including the name and address of the supervisory fish biologist, methods used to isolate the work area and minimize disturbances to ESA-listed species, stream conditions prior to and following placement and removal of barriers, the means of fish removal, the number of fish removed by species, the condition of all fish released, and any incidence of observed injury or mortality.

iii. If fish salvaging requires the use of electrofishing equipment to capture fish, it must be accomplished as follows (NMFS 1998):

(1) Electrofishing may not occur in the vicinity of listed adults in spawning condition or in the vicinity of redds containing eggs.

(2) Equipment must be in good working condition. Operators must go through the manufacturer's preseason checks, adhere to all provisions, and record major maintenance work in a log.

(3) A crew leader having at least 100 hours of electrofishing experience in the field using similar equipment must train the crew. The crew leader's experience must be documented and available for confirmation; such documentation may be in the form of a logbook. The training must occur before an inexperienced crew begins any electrofishing, and must also be conducted in waters that do not contain listed fish.

(4) Measure conductivity and set voltage as follows:

Conductivity (umhos/cm)	Voltage
Less than 100	900 to 1100
100 to 300	500 to 800
Greater than 300	150 to 400

(5) Direct current (DC) must be used at all times.

(6) Each session must begin with pulse width and rate set to the minimum needed to capture fish. These settings should be gradually increased only to the point where fish are immobilized and captured. Start with pulse width of 500us and do not exceed 5

milliseconds. Pulse rate should start at 30Hz and work carefully upwards. In general, pulse rate should not exceed 40 Hz, to avoid unnecessary injury to the fish.

(7) The zone of potential fish injury is 0.5m from the anode. Care should be taken in shallow waters, undercut banks, or where fish can be concentrated because in such areas the fish are more likely to come into close contact with the anode.

(8) The monitoring area must be worked systematically, moving the anode continuously in a herringbone pattern through the water. Do not electrofish one area for an extended period.

(9) Crew must carefully observe the condition of the sampled fish. Dark bands on the body and longer recovery times are signs of injury or handling stress. When such signs are noted, the settings for the electrofishing unit may need adjusting. Sampling must be terminated if injuries occur or abnormally long recovery times persist.

(10) Whenever possible, a block net must be placed below the area being sampled to capture stunned fish that may drift downstream.

(11) The electrofishing settings must be recorded in a logbook along with conductivity, temperature, and other variables affecting efficiency. These notes, together with observations on fish condition, will improve technique and form the basis for training new operators.

iv. Fish Passage. Passage shall be provided for both adult and juvenile forms of salmonid species throughout the construction period. The FHWA/ODOT will ensure passage of fish as per ORS 498.268 and ORS 509.605 (Oregon's fish passage guidance).

3. To Implement Reasonable and Prudent Measure #3 (erosion and pollution control), FHWA will ensure that:

a. The Contractor will develop and implement a site-specific spill prevention, containment, and control plan (SPCCP), and is responsible for containment and removal of any toxicants released. The Contractor will be monitored by the ODOT Engineer to ensure compliance with this SPCCP.

b. Material removed during excavation will only be placed in locations that prevent their entry into streams, wetlands, or other water bodies.

c. During excavation, native streambed materials will be stockpiled above the bankfull elevation for later use. Once riprap has been placed, native materials will be placed over the top of the riprap.

d. The following erosion and pollution control materials are onsite:

i. A supply of erosion control materials (*e.g.*, silt fence and straw bales) is on site to respond to sediment emergencies. Sterile straw or hay bales will be used when available to prevent introduction of weeds.

ii. An oil-absorbing, floating boom is available on-site during all phases of construction. The boom must be able to span the wetted channel.

iii. All temporary erosion controls (*e.g.*, straw bales, silt fences) are in-place and appropriately installed downslope of project activities within the riparian area. Effective erosion control measures will be in-place at all times during the contract, and will remain and be maintained until such time that permanent erosion control measures are effective.

e. All exposed or disturbed areas will be stabilized to prevent erosion.

i. Areas of bare soil within 45 m of waterways, wetlands or other sensitive areas will be stabilized by native seeding[1], mulching, and placement of erosion control blankets and mats, if applicable, but within 14 days of exposure.

ii. All other areas will be stabilized quickly as reasonable, but within 14 days of exposure.

iii. Seeding outside of the growing season will not be considered adequate nor permanent stabilization.

f. All erosion control devices will be inspected during construction to ensure that they are working adequately.

i. Erosion control devices will be inspected daily during the rainy season, weekly during the dry season, and monthly on inactive sites.

ii. If inspection shows that the erosion controls are ineffective, work crews will be mobilized immediately, during working and off-hours, to make repairs, install replacements, or install additional controls as necessary.

g. Erosion control measures will be judged ineffective when turbidity plumes are evident in waters occupied by listed salmonids during any part of the year.

h. If soil erosion and sediment resulting from construction activities is not effectively controlled, the engineer will limit the amount of disturbed area to that which can be adequately controlled.

i. Sediment will be removed from sediment controls once it has reached 1/3 of the exposed height of the control. Whenever straw bales are used, they will be staked and dug into the ground 12 cm. Catch basins will be maintained so that no more than 15 cm of sediment depth accumulates within traps or sumps.

j. Sediment-laden water created by construction activity will be filtered before it leaves the right-of-way or enters a stream or other water body. Silt fences or other detention methods will be installed as close as reasonable to culvert outlets to reduce the amount of sediment entering aquatic systems.

k. Any hazardous materials spill will be reported to NOAA Fisheries.

i. In the event of a hazardous materials or petrochemical spill, immediate action shall be taken to recovery toxic materials from further impacting aquatic or riparian resources.

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[1] By Executive Order 13112 (February 3, 1999), Federal agencies are not authorized to permit, fund or carry out actions that are likely to cause, or promote, the introduction or spread of invasive species. Therefore, only native vegetation that is indigenous to the project vicinity, or the region of the state where the project is located, shall be used.

ii. In the event of a hazardous materials or petrochemical spill, a detailed description of the quantity, type, source, reason for the spill, and actions taken to recover materials will be documented. The documentation should include photographs.

l. The work bridges will have containment measures in place that minimizes any potential of petrochemicals or hazardous materials from entering the river.
   i. The decking of the work bridge shall be constructed to self-contain petrochemicals and hazardous materials.
   ii. The work bridges and the containment structure will be maintained to preserve containment integrity throughout the term of the project.

m. Refueling and hazardous materials.
   i. All staging and refueling shall occur at least 90 m from the OHWM, except as stated below.
      (1) Fuel storage locations within 90 m of the OHWM shall have containment measures in place that meets or exceeds 100% containment.
      (2) No auxiliary fuel tanks are stored within 90 m of the OHWM.
   ii. Hazardous materials stored within 90 m of the OHWM shall have containment measures in place that meets or exceeds 100% containment.
   iii. No hazardous materials will be stored on the work bridge.

4. To Implement Reasonable and Prudent Measure #4 (minimizing loss of instream habitat), FHWA will ensure that:
   a. The distance between existing bridge approach fill and the 100-year flood plain or OHWM (whichever is closer to the existing fill) will not be reduced.
   b. The amount of fill within the 100-year flood plain will be minimized.
   c. Boundaries of the clearing limits associated with site access and construction will be flagged to prevent ground disturbance of riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.
   d. During excavation, native streambed material will be stockpiled out of the two-year flood plain and for later use in back-filling the trenches used to construct the coffer dams.
   e During project design ODOT will work to minimize the amount of riprap used. Where riprap is necessary, only clean, non-erodible, upland angular rock of sufficient size for long-term armoring will be employed. Riprap will not be "end-dumped" within the wetted channel.
   f. Placement of large wood will be implemented as described in the Proposed Action section of the 2002 BA and this Opinion. Wood placement will only include complex large wood to provide functional refugia habitat for fish (*e.g.* root wads shall not be trimmed).
   g. Alteration or disturbance of stream banks and existing riparian vegetation will be minimized. Where bank work is necessary, bank protection material shall be placed to maintain normal waterway configuration whenever possible.
   h. Temporary access roads will be designed as follows:

i. Temporary access roads will not cross streams.
ii. Alteration of existing native vegetation will be minimized in the construction, use, and maintenance of temporary access roads.
iii. Existing roadways or travel paths will be used whenever reasonable.
iv. Vehicles and machinery must cross riparian areas at right angles to the main channel wherever reasonable.
v. Temporary roads within 45 m of streams will avoid, minimize and mitigate soil disturbance and compaction by clearing vegetation to ground level and placing clean gravel over geotextile fabric.
vi. No treated wood may be used within or above the OHWM.

i. All project operations, except efforts to minimize storm or high flow erosion, will cease under high flow conditions that may result in inundation of the immediate work area.

j. Measures will be taken to prevent any debris from falling within the boundaries of the OHWM. Any material that falls within this area will be removed in a manner that has a minimum impact to the riparian area, streambed and water quality.

5. To implement Reasonable and Prudent Measure # 5 (new impervious surface and stormwater management), the FHWA shall ensure that:

a. All storm water runoff from any road or bridge built pursuant to a permit issued under this Opinion must be managed to ensure that it will not result in a change in the existing hydraulic conditions or an increase of pollutants to the receiving water.

b. Any project that will produce new surfaces or land use conversions that retard the entry of water into the soil must control the quantity and quality of the resulting stormwater runoff for the life of the project.

c. Stormwater must be infiltrated or dispersed onsite to the maximum extent possible without causing flooding or erosion impacts.

d. When stormwater runoff must be discharged into a freshwater system, the following requirements apply.

i. The area must be drained by a conveyance system comprised entirely of manufactured elements (*e.g.*, pipes, ditches, outfall protection) that extends to the ordinary high water line of the receiving water.
ii. Any erodible elements of this system must be adequately stabilized to prevent erosion.
iii. Surface water from the area must not be diverted from or increased to an existing wetland, stream or near-shore habitat sufficient to cause a significant adverse effect.
iv. Runoff treatment facilities must be designed, built and maintained to collect runoff from the project site using the best available technology applicable to the site conditions. Treatment must be provided to remove debris, nutrients, sediment, petroleum hydrocarbons, metals and other pollutants likely to be present.

6. To implement Reasonable and Prudent Measure #6 (site restoration and mitigation), the FHWA shall ensure that:
    a. Site restoration and clean-up, including protection of bare earth by seeding, planting, mulching and fertilizing, is done in the following manner:
        i. All damaged areas will be restored to pre-work conditions including restoration of original streambank lines, and contours.
        ii. All exposed soil surfaces, including construction access roads and associated staging areas, will be stabilized at finished grade with mulch, native herbaceous seeding, and native woody vegetation.
            (1) Planting should occur between October 15 and March 15. Do not plant in freezing periods of weather.
            (2) On cut slopes steeper than 1 to 2, a tackified seed mulch will be used so that the seed does not wash away before germination and rooting occurs. In steep locations, a hydromulch will be applied at 1.5 times the normal rate.
        iii. Disturbed areas will be planted with native vegetation specific to the project vicinity or the region of the state where the project is located, and will comprise a diverse assemblage of woody and herbaceous species.
        iv. Plantings will be arranged randomly within the revegetation area.
        v. No herbicide application will occur within 90 m of any stream channel as part of this permitted action. Mechanical removal of undesired vegetation and root nodes is permitted.
        vi. No surface application of fertilizer will be used within 15 m of any stream channel as part of this permitted action.
        vii. Fencing will be installed as necessary to prevent access to revegetated sites by livestock or unauthorized persons.
        viii. Plantings will achieve an 80% survival success after three years.
            (1) If success standard has not been achieved after 3 years, the applicant will submit an alternative plan to the FHWA. The alternative plan will address temporal loss of function.

7. To implement Reasonable and Prudent Measure #7 (monitoring and reporting), the FHWA shall ensure that:
    a. Within 90 days of completing the project, the FHWA/ODOT will submit a monitoring report to NOAA Fisheries describing the success meeting their permit conditions. This report will consist of the following information:
        i. <u>Project identification</u>.
            (1) Project name.
            (2) Starting and ending dates of work completed for this project.
            (3) The FHWA contact person.
            (4) Monitoring reports shall be submitted to:

                NOAA Fisheries

Oregon Habitat Branch, Habitat Conservation Division
Attn: 2002-00816
525 NE Oregon Street, Suite 500
Portland, OR 97232-2778

ii. Isolation of in-water work area. A report of any fish salvage activity including:
   (1) The name and address of the supervisory fish biologist.
   (2) Methods used to isolate the work area and minimize disturbances to ESA-listed species.
   (3) Stream conditions before and following placement and removal of barriers.
   (4) The means of fish removal.
   (5) The number of fish removed by species.
   (6) The location and condition of all fish released.
   (7) Any incidence of observed injury or mortality.

iii. Pollution and erosion control.
   (1) A summary of pollution and erosion control inspection reports, including descriptions of any failures experienced with erosion control measures, efforts made to correct them and a description of any accidental spills of hazardous materials.

iv. Site restoration. Provide documentation of the following conditions:
   (1) Finished grade slopes and elevations.
   (2) Log and rock structure elevations, orientation, and anchoring, if any.
   (3) Planting composition and density.
   (4) A plan to inspect and, if necessary, replace failed planting and structures for three years.

v. A narrative assessment of the project's effects on natural stream function.

vi. Photographic documentation of environmental conditions at the project site and compensatory mitigation site(s) (if any) before, during and after project completion.
   (1) Photographs will include general project location views and close-ups showing details of the project area and project, including pre and post construction.
   (2) Each photograph will be labeled with the date, time, photo point, project name, the name of the photographer, and a comment describing the photograph's subject.
   (3) Relevant habitat conditions including characteristics of channels, streambanks, riparian vegetation, flows, water quality, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

vii. Post-construction impacts. The FHWA/ODOT shall assess the project's impacts, temporary and permanent, and compare them to the impacts

assessed in the 2002 BA. This written assessment will be provided to NOAA Fisheries for review. If the actual impacts exceed those outlined in the BA then the FHWA/ODOT will provide additional mitigation to offset those impacts.

3. MAGNUSON - STEVENS ACT

3.1 Background

The objective of the essential fish habitat (EFH) consultation is to determine whether the proposed action may adversely affect designated EFH for relevant species, and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH resulting from the proposed action.

3.2 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-297), requires the inclusion of EFH descriptions in Federal fishery management plans. In addition, the MSA requires Federal agencies to consult with NOAA Fisheries on activities that may adversely affect EFH.

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting the definition of essential fish habitat: "Waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50CFR600.110).

Section 305(b) of the MSA (16 U.S.C. 1855(b)) requires that:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH.
- NOAA Fisheries shall provide conservation recommendations for any Federal or state activity that may adversely affect EFH.
- Federal agencies shall within 30 days after receiving conservation recommendations from NOAA Fisheries provide a detailed response in writing to NOAA Fisheries regarding the conservation recommendations. The response shall include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with the conservation

recommendations of NOAA Fisheries, the Federal agency shall explain its reasons for not following the recommendations.

The MSA requires consultation for all actions that may adversely affect EFH, and does not distinguish between actions within EFH and actions outside EFH. Any reasonable attempt to encourage the conservation of EFH must take into account actions that occur outside EFH, such as upstream and upslope activities, that may have an adverse effect on EFH. Therefore, EFH consultation with NOAA Fisheries is required by Federal agencies undertaking, permitting or funding activities that may adversely affect EFH, regardless of its location.

3.3 Identification of EFH

The Pacific Fisheries Management Council (PFMC) has designated EFH for three species of Pacific salmon: Chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*O. kisutch*), and Puget Sound pink salmon (*O. gorbuscha*) (PFMC 1999). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC), and longstanding, naturally-impassable barriers (i.e., natural waterfalls in existence for several hundred years). Detailed descriptions and identifications of EFH for salmon are found in Appendix A to Amendment 14 to the *Pacific Coast Salmon Plan* (PFMC 1999). Assessment of potential adverse effects to these species' EFH from the proposed action is based on this information.

3.4 Proposed Actions

The proposed actions are detailed in section 1.2. The action area is defined as the Rogue River 0.5 km upstream and 1.6 km downstream of the Depot Street Bridge. This area has been designated as EFH for various life stages of coho salmon and chinook salmon.

3.5 Effects of Proposed Action

As described in detail in section 1.5, the proposed activities may result in detrimental short- and long-term adverse effects to a variety of habitat parameters. These impacts include increases in turbidity, disturbance of the beds and banks of the river, removal of riparian vegetation, and the potential for pollutants to enter the water.

3.6 Conclusion

NOAA Fisheries believes that the proposed action will adversely affect the EFH for coho salmon and chinook salmon.

3.7 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the Magnuson-Stevens Act, NOAA Fisheries is required to provide EFH conservation recommendations for any Federal or state agency action that would adversely affect EFH. The conservation measures proposed for the project by the FHWA and all of the reasonable and prudent measures and the terms and conditions contained in sections 2.2 and 2.3 are applicable to salmon EFH. Therefore, NOAA Fisheries incorporates each of those measures here as EFH conservation recommendations.

3.8 Statutory Response Requirement

Please note that the Magnuson-Stevens Act (section 305(b)) and 50 CFR 600.920(j) requires the Federal agency to provide a written response to NOAA Fisheries after receiving EFH conservation recommendations within 30 days of its receipt of this letter. This response must include a description of measures proposed by the agency to avoid, minimize, mitigate or offset the adverse impacts of the activity on EFH. If the response is inconsistent with a conservation recommendation from NOAA Fisheries, the agency must explain its reasons for not following the recommendation.

3.9 Supplemental Consultation

The FHWA must reinitiate EFH consultation with NOAA Fisheries if either the action is substantially revised or new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920).

4. LITERATURE CITED

Section 7(a)(2) of the ESA requires biological opinions to be based on "the best scientific and commercial data available." This section identifies the data used in developing this Opinion.

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